

ABSTRACT

A particle beam image detector employing gas amplification attained by pixel-type electrodes has high sensitivity and improved reliability of electrodes. Electrons e^- produced through ionization of the gas move under the force of a drift field toward a pixel in the form of a columnar anode electrode. Avalanche amplification occurs in the vicinity of the columnar anode electrode due to a strong electric field between anode and cathode and the pointed shape of the electrode. The positive ions quickly drift toward strip-shaped cathode electrodes. Electric charges are generated on the columnar anode electrodes and also on the strip-shaped cathodes and these electric charges are observable to determine the anode or cathode strip at which this amplification phenomenon occurs and thus to obtain information as to position of the incident particle beam.